

## **Freshwater Indicators – November 2011**

### **Woonasquatucket River Freshwater Quality Existing Data Sources:**

1. WRWC Watershed Watch Monitoring Data – 3 sites from 2003 to 2011
  - a. Data
    - i. Enterococci
    - ii. Temp
    - iii. Dissolved Oxygen
    - iv. Chloride
    - v. Ammonium Nitrogen
    - vi. Nitrate Nitrogen
    - vii. Total Nitrogen
    - viii. pH
    - ix. Dissolved Phosphorus
    - x. Total Phosphorus
2. RIDEM - Woonasquatucket River Fecal Coliform Bacteria and Dissolved Metals (Cd, Cu, Pb, and Zn) Total Maximum Daily Loads – April 2007
  - a. Data
    - i. Fecal Coliform
    - ii. Dissolved Metals (Cd, Cu, Pb, and Zn)
3. Pleasant Valley Stream – Providence College – Annual Student monitoring for bacteria and nutrients since 2005
  - a. Data
    - i. Fecal Coliform
    - ii. Temp
    - iii. pH
    - iv. Nutrients
4. Louis Berger Group, Inc. 2001. Water Quality Characterization for the Woonasquatucket River Basin.
  - a. Data
    - i. Temp
    - ii. pH
    - iii. TSS
    - iv. Fecal Coliform
    - v. Dissolved Oxygen
    - vi. Ammonia
    - vii. Nitrate
    - viii. Nitrite
    - ix. TKN
    - x. Total Nitrogen

- xi. TDN
- xii. Phosphate
- xiii. Total Phosphorus
- xiv. Hardness
- xv. Cadmium
- xvi. Chromium
- xvii. Copper
- xviii. Lead
- xix. Mercury
- xx. Nickel
- xxi. Silver
- xxii. Zinc
- xxiii. Hydrocarbons
- xxiv. PCBs, Dioxins, Pesticides, VOCs, SVOCs
- xxv. Fish Tissue
- xxvi. Benthic Macroinvertebrates

5. Narragansett Bay Commission Water Quality Monitoring Report (Annual)

- a. Data I – 2 sites
  - i. Temp (°C)
  - ii. pH
  - iii. NO<sub>3</sub>+NO<sub>2</sub> (ppb)
  - iv. Nitrite (ppb)
  - v. NO<sub>3</sub> (ppb)
  - vi. NH<sub>3</sub> (ppb)
  - vii. Ortho-Phosphate (ppb)
  - viii. Silicate (ppb)
  - ix. Total Dissolved Nitrogen (ppb)
  - x. DIN (ppb)
  - xi. TSS (ppm)
- b. Data II – 7 sites
  - i. Fecal Coliform

6. A Preliminary Summary of Fish Surveys That Were conducted in Rhode Island's Streams and Ponds Between 1993 and 2002

- a. Data
  - i. Quantity and Diversity and Size of Fish in Lower Woonasquatucket

7. Integrated Water Quality Assessment Reports 2000, 2002, 2004, 2006, 2008, 2010

<u>Designated Use</u>	<u>Designated Use Group</u>	<u>Status</u>
Fish And Wildlife Habitat	Fish, Shellfish, And Wildlife Protection And Propagation	Impaired
Fish Consumption	Aquatic Life Harvesting	Impaired
Primary Contact Recreation	Recreation	Impaired
Secondary Contact Recreation	Recreation	Impaired

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8. Dominion Energy – Annual Fish Counts Providence River
9. USGS Continuous Flow Data

## **Recommended Indicators For Woonasquatucket:**

1. Enterococci and/or Fecal Coliform – Primary and Secondary Contact Recreation
2. Fish Tissue (impractical because it is so difficult to sample and expensive to analyze): -  
Human health for fish consumption
3. Fish Survey – Wildlife and Habitat Protection and Propagation
  - a. Can also use Macroinvertebrate Surveys
  - b. Can also use Temp, DO, Flow and/or nutrients but not as accurate

## **Recommended Interface for Report Card:**

I favor a map presentation with simple icons and ratings representing each of the indicators. I haven't yet seen one that is perfect. Pointing at different spots on a map, I envision:

1. Human Contact: Happy swimmer/unhappy swimmer – Happy boater/unhappy boater
2. Fish Consumption: Yummy fish on plate/poison fish on plate
3. Wildlife Habitat: Happy fish/middle of the road fish/dead fish